

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(I) APPLICANT: Nielsen, Peter E. et al.

5 (ii) TITLE OF INVENTION: Peptide Nucleic Acids Having
Antibacterial Activity

(iii) NUMBER OF SEQUENCES: 20

(iv) CORRESPONDENCE ADDRESS:

10 (A) ADDRESSEE: Woodcock Washburn Kurtz Mackiewicz
& Norris LLP

(B) STREET: One Liberty Place - 46th Floor

(C) CITY: Philadelphia

(D) STATE: PA

(E) COUNTRY: U.S.A.

15 (F) ZIP: 19103

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: 3.5 inch disk, 1.44 Mb

(B) COMPUTER: IBM PC compatible

(C) OPERATING SYSTEM: PC-DOS/MS-DOS

20 (D) SOFTWARE: WordPerfect 6.1

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: N/A

(B) FILING DATE: 16 September 1998

(C) CLASSIFICATION: N/A

25 (vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 08/932,140

(B) FILING DATE: 16 September 1997

(viii) ATTORNEY/AGENT INFORMATION:

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(C) REFERENCE/DOCKET NUMBER: ISIS-3267

(ix) TELECOMMUNICATION INFORMATION:

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5 (B) TELEFAX: 215-568-3439

(2) INFORMATION FOR SEQ ID NO: 1:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14 bases

(B) TYPE: nucleic acid

10 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

TGACCATGAT TACG

14

(2) INFORMATION FOR SEQ ID NO: 2:

15 (I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

TACGTGTTTC CTGTGTG

17

(2) INFORMATION FOR SEQ ID NO:3:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 bases

25 (B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

GAGTATTCAA CATTTCC

17

(2) INFORMATION FOR SEQ ID NO: 4:

(I) SEQUENCE CHARACTERISTICS:

- 5 (A) LENGTH: 17 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

ATTGTCTTCC TTTTCA

17

10 (2) INFORMATION FOR SEQ ID NO: 5:

(I) SEQUENCE CHARACTERISTICS:

- 15 (A) LENGTH: 15 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ix) FEATURE:

- 20 (A) NAME/KEY: Modified-site
(B) LOCATION: 1
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- 25 (A) NAME/KEY: Modified-site
(B) LOCATION: 2
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- 30 (A) NAME/KEY: Modified-site
(B) LOCATION: 3
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site

- (B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 5 (A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 10 (A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 15 (A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 20 (A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 25 (A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 30 (A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 35 (A) NAME/KEY: Modified-site
(B) LOCATION: 11

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 12

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 13

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 14

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 15

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

GGTCATAGCT GTTTC

15

25 (2) INFORMATION FOR SEQ ID NO: 6:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

30 (D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 3

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 5

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 6

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 7

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 8

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 9
 (D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 10
 (D) OTHER INFORMATION: N-acetyl(2-
10 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 11
 (D) OTHER INFORMATION: N-acetyl(2-
15 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 12
 (D) OTHER INFORMATION: N-acetyl(2-
20 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 13
 (D) OTHER INFORMATION: N-acetyl(2-
25 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 14
 (D) OTHER INFORMATION: N-acetyl(2-
30 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 15
 (D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
35 lysine-glycine backbone
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

TACTCATACT CTTCC

15

(2) INFORMATION FOR SEQ ID NO: 7:

(I) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 bases
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

5

(ix) FEATURE:

- (A) NAME/KEY: Modified-site

10

- (B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site

15

- (B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site

20

- (B) LOCATION: 3

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site

25

- (B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site

30

- (B) LOCATION: 5

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site

35

- (B) LOCATION: 6.

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 7

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 8

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 9

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 10

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 11

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 12

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 13

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 14

(D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 15

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
10 lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

GAATACTCAT ACTCT

15

(2) INFORMATION FOR SEQ ID NO: 8:

(I) SEQUENCE CHARACTERISTICS:

15

(A) LENGTH: 15 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ix) FEATURE:

20

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-
aminoethyl)glycine backbone

(ix) FEATURE:

25

(A) NAME/KEY: Modified-site

(B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-
aminoethyl)glycine backbone

(ix) FEATURE:

30

(A) NAME/KEY: Modified-site

(B) LOCATION: 3

(D) OTHER INFORMATION: N-acetyl(2-
aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
(B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 5 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 10 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 15 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 20 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 25 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 30 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 35 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 11

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 12

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 13

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 14

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 15

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

ACGCCACATC TTCGC

15

25 (2) INFORMATION FOR SEQ ID NO: 9:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

30 (D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
5 (B) LOCATION: 2
(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
10 (B) LOCATION: 3
(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
15 (B) LOCATION: 4
(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
20 (B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
25 (B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
30 (B) LOCATION: 7
(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
35 (B) LOCATION: 8
(D) OTHER INFORMATION: (O-2-aminoethyl-O'-acetyl-ethyleneglycol),

- (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 9
 (D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 10
 (D) OTHER INFORMATION: N-acetyl(2-
10 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 11
 (D) OTHER INFORMATION: N-acetyl(2-
15 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 12
 (D) OTHER INFORMATION: N-acetyl(2-
20 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 13
 (D) OTHER INFORMATION: N-acetyl(2-
25 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 14
 (D) OTHER INFORMATION: N-acetyl(2-
30 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 15
 (D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
35 lysine-glycine backbone
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

TNNNTTNNCT TCCCT

15

(2) INFORMATION FOR SEQ ID NO: 10:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 bases

5 (B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 1

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 3

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 5

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 6

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 7

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 8

(D) OTHER INFORMATION: (O-2-aminoethyl-O'-acetyl-ethyleneglycol),

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 9

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 10

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 11

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 12

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 13

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 14
 (D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 15
 (D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
10 lysine-glycine backbone
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

NTTNTNTNTC CTTTC

15

- (2) INFORMATION FOR SEQ ID NO: 11:
 (I) SEQUENCE CHARACTERISTICS:
15 (A) LENGTH: 15 bases
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ix) FEATURE:
20 (A) NAME/KEY: Modified-site
 (B) LOCATION: 1
 (D) OTHER INFORMATION: N-acetyl(2-
aminoethyl)glycine backbone
 (ix) FEATURE:
25 (A) NAME/KEY: Modified-site
 (B) LOCATION: 2
 (D) OTHER INFORMATION: N-acetyl(2-
aminoethyl)glycine backbone
 (ix) FEATURE:
30 (A) NAME/KEY: Modified-site
 (B) LOCATION: 3
 (D) OTHER INFORMATION: N-acetyl(2-
aminoethyl)glycine backbone
 (ix) FEATURE:

- (A) NAME/KEY: Modified-site
(B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 5 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 10 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 15 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 20 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 25 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 30 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 35 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 11

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 12

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 13

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 14

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 15

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

CATACTCTTT CTCCT

15

25 (2) INFORMATION FOR SEQ ID NO: 12:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 25 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

30 (D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 3

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 5

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 6

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 7

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 8

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 9
 (D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 10
 (D) OTHER INFORMATION: N-acetyl(2-
10 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 11
 (D) OTHER INFORMATION: N-pseudo isocytosine-
15 acetyl(2-aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 12
 (D) OTHER INFORMATION: (O-2-aminoethyl-O'-acetyl-
20 ethyleneglycol),
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 13
 (D) OTHER INFORMATION: N-acetyl(2-
25 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 14
 (D) OTHER INFORMATION: N-acetyl(2-
30 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 15
 (D) OTHER INFORMATION: N-acetyl(2-
35 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site

- (B) LOCATION: 16
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 5 (A) NAME/KEY: Modified-site
(B) LOCATION: 17
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 10 (A) NAME/KEY: Modified-site
(B) LOCATION: 18
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 15 (A) NAME/KEY: Modified-site
(B) LOCATION: 19
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 20 (A) NAME/KEY: Modified-site
(B) LOCATION: 20
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 25 (A) NAME/KEY: Modified-site
(B) LOCATION: 21
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 30 (A) NAME/KEY: Modified-site
(B) LOCATION: 22
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 35 (A) NAME/KEY: Modified-site
(B) LOCATION: 23

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 24

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 25

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

TTTNNNNTTT NTNTCTTTCC GTCTT

25

15 (2) INFORMATION FOR SEQ ID NO: 13:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

20 (D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: N-pseudo isocytosine-
25 acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-
30 aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 3

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 5

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 6

(D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 7

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 8

(D) OTHER INFORMATION: (O-2-aminoethyl-O'-acetyl-ethyleneglycol)₃

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 9

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 10

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 11
 (D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 12
 (D) OTHER INFORMATION: N-acetyl(2-
10 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 13
 (D) OTHER INFORMATION: N-acetyl(2-
15 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 14
 (D) OTHER INFORMATION: N-acetyl(2-
20 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 15
 (D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
25 lysine-glycine backbone
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

NTNTNNTNTC CTCTC

15

- (2) INFORMATION FOR SEQ ID NO: 14:
 (I) SEQUENCE CHARACTERISTICS:
30 (A) LENGTH: 12 bases
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ix) FEATURE:

- (A) NAME/KEY: Modified-site
(B) LOCATION: 1
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 5 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 2
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 10 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 3
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 15 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 20 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 25 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 30 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 35 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 9

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 10

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 11

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 12

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

CCCCTATTGT CC

12

25 (2) INFORMATION FOR SEQ ID NO: 15:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

30 (D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
5 (B) LOCATION: 2
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
10 (B) LOCATION: 3
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
15 (B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
20 (B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
25 (B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
30 (B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
35 (B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 9
 - (D) OTHER INFORMATION: N-acetyl(2-
- 5 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 10
 - (D) OTHER INFORMATION: N-acetyl(2-
- 10 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 11
 - (D) OTHER INFORMATION: N-acetyl(2-
- 15 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 12
 - (D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
- 20 lysine-glycine backbone
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

TTCTGCCTTT CT

12

- (2) INFORMATION FOR SEQ ID NO: 16:
- (I) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8 bases
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 1
 - (D) OTHER INFORMATION: N-acetyl(2-
- 30 aminoethyl)glycine backbone
- (ix) FEATURE:

- (A) NAME/KEY: Modified-site
(B) LOCATION: 2
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 5 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 3
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 10 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 15 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 20 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 25 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 30 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone
- 35 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

CTCGAGGT

(2) INFORMATION FOR SEQ ID NO: 17:

(I) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5 bases
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

5

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1

10

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 2

15

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 3

20

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 4

25

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 5

30

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

TAAAC

5

(2) INFORMATION FOR SEQ ID NO: 18:

- Ii) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10 bases
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- 5 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 1
 - (D) OTHER INFORMATION: N-acetyl(2-
- 10 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 2
 - (D) OTHER INFORMATION: N-acetyl(2-
- 15 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 3
 - (D) OTHER INFORMATION: N-acetyl(2-
- 20 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 4
 - (D) OTHER INFORMATION: N-acetyl(2-
- 25 aminoethyl)glycine backbone
- § (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 5
 - (D) OTHER INFORMATION: N-acetyl(2-
- 30 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 6
 - (D) OTHER INFORMATION: N-acetyl(2-
- 35 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site

- (B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 5 (A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 10 (A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 15 (A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:
- 20 AAGGAGGTGA 10
- (2) INFORMATION FOR SEQ ID NO: 19:
(I) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 bases
(B) TYPE: nucleic acid
25 (C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 1
30 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 3

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 5

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 6

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 7

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 8

(D) OTHER INFORMATION: (O-2-aminoethyl-O'-acetyl-ethyleneglycol)₃

ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 9

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 10
 - (D) OTHER INFORMATION: N-acetyl(2-
- 5 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 11
 - (D) OTHER INFORMATION: N-acetyl(2-
- 10 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 12
 - (D) OTHER INFORMATION: N-acetyl(2-
- 15 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 13
 - (D) OTHER INFORMATION: N-acetyl(2-
- 20 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 14
 - (D) OTHER INFORMATION: N-acetyl(2-
- 25 aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 15
 - (D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
- 30 lysine-glycine backbone
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

TCTCTTINTT TCTCT

15

(2) INFORMATION FOR SEQ ID NO: 20:

(I) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 bases
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- 5 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 1
 - (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 10 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 2
 - (D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone
- 15 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 3
 - (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 20 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 4
 - (D) OTHER INFORMATION: N-pseudo isocytosine-acetyl(2-aminoethyl)glycine backbone
- 25 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 5
 - (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 30 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 6
 - (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 35 (ix) FEATURE:
- (A) NAME/KEY: Modified-site
 - (B) LOCATION: 7

- (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
- 5 (B) LOCATION: 8
- (D) OTHER INFORMATION: (O-2-aminoethyl-O'-acetyl-ethylene glycol)₃
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
- 10 (B) LOCATION: 9
- (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
- 15 (B) LOCATION: 10
- (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
- 20 (B) LOCATION: 11
- (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
- 25 (B) LOCATION: 12
- (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
- 30 (B) LOCATION: 13
- (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- (ix) FEATURE:
- (A) NAME/KEY: Modified-site
- 35 (B) LOCATION: 14
- (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 15

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
 5 lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

TNTNTTTNTT TCTCT

15

(2) INFORMATION FOR SEQ ID NO: 21:

(I) SEQUENCE CHARACTERISTICS:

10 (A) LENGTH: 15 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ix) FEATURE:

15 (A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-
 aminoethyl)glycine backbone

(ix) FEATURE:

20 (A) NAME/KEY: Modified-site

(B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-
 aminoethyl)glycine backbone

(ix) FEATURE:

25 (A) NAME/KEY: Modified-site

(B) LOCATION: 3

(D) OTHER INFORMATION: N-acetyl(2-
 aminoethyl)glycine backbone

(ix) FEATURE:

30 (A) NAME/KEY: Modified-site

(B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-
 aminoethyl)glycine backbone

(ix) FEATURE:

35 (A) NAME/KEY: Modified-site

- (B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 5 (A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 10 (A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 15 (A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 20 (A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 25 (A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 30 (A) NAME/KEY: Modified-site
(B) LOCATION: 11
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
- 35 (A) NAME/KEY: Modified-site
(B) LOCATION: 12

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 13

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 14

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 15

(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

AGGTGTCAGC GAACG

15

20 (2) INFORMATION FOR SEQ ID NO: 22:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

25 (D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

30 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2

35 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 3
(D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-
10 aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-
15 aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-
20 aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-
25 aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-
30 aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-
35 aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site

(B) LOCATION: 10
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
5 (A) NAME/KEY: Modified-site
(B) LOCATION: 11
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
10 (A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
15 (A) NAME/KEY: Modified-site
(B) LOCATION: 13
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
20 (A) NAME/KEY: Modified-site
(B) LOCATION: 14
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
25 (A) NAME/KEY: Modified-site
(B) LOCATION: 15
(D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-lysine-glycine backbone
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

30 CTTTGTCGAT ACTGG

15

(2) INFORMATION FOR SEQ ID NO: 23:
(I) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 bases
(B) TYPE: nucleic acid
35 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

5 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2

10 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 3

15 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 4

20 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 5

25 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 6

30 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 7

35 (D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 5 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 10 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 15 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 11
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 20 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 12
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 25 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 13
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 30 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 14
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 35 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

GTCATAGCTG TTTC

14

(2) INFORMATION FOR SEQ ID NO: 24:

(1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 bases
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

5

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1

10

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 2

15

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 3

20

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 4

25

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 5

30

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 6

35

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 5 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 10 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 9
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 15 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 10
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 20 (ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 11
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
- 25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

CATAGCTGTT C

11

- (2) INFORMATION FOR SEQ ID NO: 25:
(I) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 bases
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

5 (B) LOCATION: 2

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

10 (B) LOCATION: 3

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

15 (B) LOCATION: 4

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

20 (B) LOCATION: 5

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

25 (B) LOCATION: 6

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

30 (B) LOCATION: 7

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

35 (B) LOCATION: 8

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 9

5 aminoethyl)glycine backbone

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 10

10 aminoethyl)glycine backbone

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

TAGCTGTTTC

10

(2) INFORMATION FOR SEQ ID NO: 26:

(I) SEQUENCE CHARACTERISTICS:

15

(A) LENGTH: 8 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ix) FEATURE:

20

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

aminoethyl)glycine backbone

(ix) FEATURE:

25

(A) NAME/KEY: Modified-site

(B) LOCATION: 2

aminoethyl)glycine backbone

(ix) FEATURE:

30

(A) NAME/KEY: Modified-site

(B) LOCATION: 3

aminoethyl)glycine backbone

(ix) FEATURE:

35

(A) NAME/KEY: Modified-site

(B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
5 (A) NAME/KEY: Modified-site
(B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
10 (A) NAME/KEY: Modified-site
(B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
15 (A) NAME/KEY: Modified-site
(B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
20 (A) NAME/KEY: Modified-site
(B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

25 GCTGTTTC

8

(2) INFORMATION FOR SEQ ID NO: 27:
(I) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 bases
(B) TYPE: nucleic acid
30 (C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 1

(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
5 (B) LOCATION: 2
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
10 (B) LOCATION: 3
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
15 (B) LOCATION: 4
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
20 (B) LOCATION: 5
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
25 (B) LOCATION: 6
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
30 (B) LOCATION: 7
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone
(ix) FEATURE:
(A) NAME/KEY: Modified-site
35 (B) LOCATION: 8
(D) OTHER INFORMATION: N-acetyl(2-aminoethyl)glycine backbone

- (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 9
 (D) OTHER INFORMATION: N-acetyl(2-
5 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 10
 (D) OTHER INFORMATION: N-acetyl(2-
10 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 11
 (D) OTHER INFORMATION: N-acetyl(2-
15 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 12
 (D) OTHER INFORMATION: N-acetyl(2-
20 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 13
 (D) OTHER INFORMATION: N-acetyl(2-
25 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 14
 (D) OTHER INFORMATION: N-acetyl(2-
30 aminoethyl)glycine backbone
 (ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 15
 (D) OTHER INFORMATION: N-[acetyl(2-aminoethyl)]-C-
35 lysine-glycine backbone
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

ACATTCACCA CCCTG

15